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U.S. ARMY FEMALE SOLDIERS' CAREER AND  
RACIAL ATTITUDES AND PERCEPTIONS

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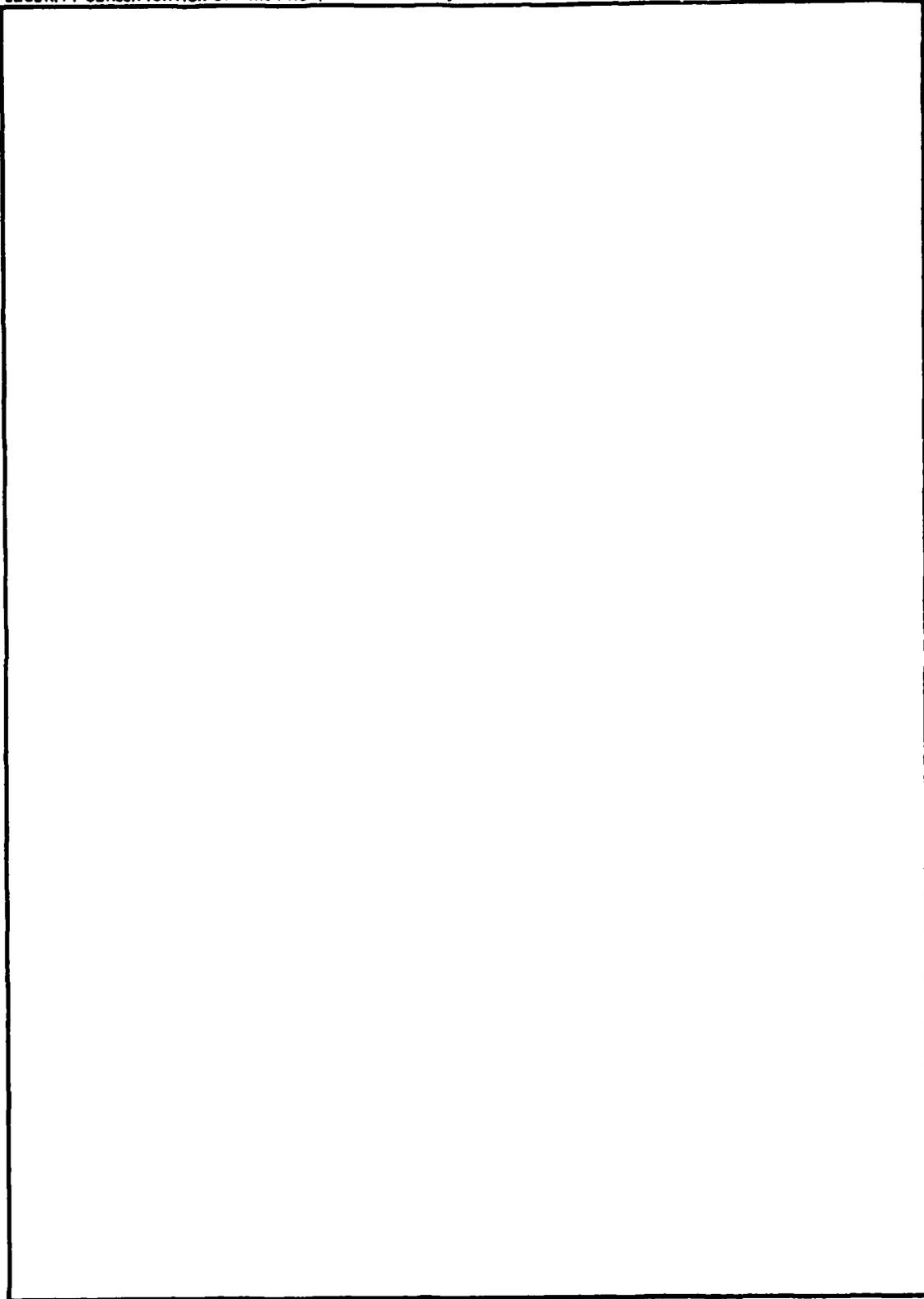
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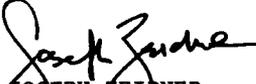


FOREWORD

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Since 1972, the Army Research Institute (ARI) has been active in research focusing on the policy, operational problems and programs of the Army Equal Opportunity Program. One of the initial research efforts involved a contract with Roy Littlejohn Associates, contract no. DAHC 19-73-C-0039, "Improving Race Relations in the Army," which was conducted under Army Project 2Q162108A743, Racial Harmony Promotion Program. This research, which examined differences in racial attitudes and perceptions among a variety of different categories of Army personnel (officer-EM, black-white, and CMFs) established the initial data bank of Army racial attitudes and perceptions. However, in this research female soldiers were not analyzed separately. The current report describes an in-house effort which examines differences in the attitudes and perceptions of black and white female soldiers included in the 1972 project. Readers should be cautioned that the data are from the earlier timeframe; however, the researchers maintain that many findings still apply to the current population of female soldiers. A follow-up study is scheduled for FY 80, which will include a larger sample of female soldiers to test this hypothesis.

This report was prepared under Army Project 2Q162717A767, Techniques for Improving Soldier Productivity, by personnel assigned to the ARI Field Unit, Presidio of Monterey, California.

  
JOSEPH ZEIDNER  
Technical Director

U.S. ARMY FEMALE SOLDIERS' CAREER AND RACIAL ATTITUDES AND PERCEPTIONS

BRIEF

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Requirement:

Analyze questionnaire data from an earlier project concerning both career and race-related attitudes and perceptions of U.S. Army female soldiers.

Procedure:

A stratified random sample was drawn from the Army personnel present at each of the 22 installations in 1973. While the combined male and female sample numbered 7,749, comparison and contrast between the 158 black and 187 white female personnel were emphasized. Analysis of variance, factor analysis, and multiple regression were some of the statistical procedures used.

Findings:

Sharp differences existed between the female groups not only on several demographic characteristics but in a substantial number of perceptual areas as well. In some other realms unexpectedly high correspondence was observed. The findings lead to the conclusion that rarely is it justifiable to ignore, even when relatively small samples are at hand, race or ethnic identification in perceptual or attitudinal research studies.

Utilization of Findings:

The project should prove useful to military leadership by enhancing both interest in and sensitivity to the existence of important differences among points of view of female personnel of diverse ethnicity. Researchers within the military environment will likely find much within this predominantly exploratory effort not only keenly of interest but deserving of further investigation.

U.S. ARMY FEMALE SOLDIERS' CAREER AND RACIAL ATTITUDES AND PERCEPTIONS

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FIGURE

Figure 1. Means for gender by race interaction ( $p < .05$ ) for item asking how white and black people will get along in the future in the United States . . . . .	26
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U.S. ARMY FEMALE SOLDIERS' CAREER AND  
RACIAL ATTITUDES AND PERCEPTIONS

Recent years have witnessed an increased participation of females in the American armed services. Without doubt a female soldier today has greater opportunities for career development than at any time in history. Within the last decade most of the legal and many of the traditional barriers to the career advancement of women in the military have been removed. Noteworthy achievements along the path of increasing parity with males include congressional removal in 1967 of the two percent ceiling on female strength, the provisions for equal pay for equal work, the elimination of automatic discharges for parenthood, and the admission of women to the military academies.

While the trend in recent years toward greater participation of women in the Armed Forces has been contemporaneous with the dramatically increased female representation in the American workforce, in perhaps no other occupational area has the impact of the female contribution been as heatedly debated. Clearly, the issues involved range from American ideals of egalitarianism, to psychologically entrenched traditionalistic values, to questions concerning national security.

Although until the last two years there has existed a general paucity of research dealing with the impact of increasing female participation in the military (Thomas, 1978), a major study dealing specifically with this situation in the U.S. Army has been recently completed (ARI, 1977). No statistically reliable effects upon performance of companies in several support areas were observed when female soldier strength was increased to as high as 35 percent. Investigations into the influence of women upon other aspects of the traditional military environment seem certain to follow. Numerous unanticipated and serendipitous findings will likely be found as the frontiers of this research area are advanced. For example, it has already been observed that the presence of female cadets at West Point caused the current class of male cadets to withstand the punishing physical training longer just to outlast them. (Christian Science Monitor, 1977).

The present research effort, rather than concentrating on how the female soldier affects the Army, explored sentiments held by female soldiers toward specific aspects of Army life. From a somewhat different perspective, it could be said that the person-institution interface was the central focus of attention. No analysis of the Army per se was attempted. In passing, however, it should be noted that the U.S. Army, especially since 1951 when all-black units were disbanded, has taken leadership position among institutions: in maintaining policies solidly supporting the principle of equal opportunity and treatment for all soldiers; for endeavoring to eliminate all discrimination based on color, creed, national origin, or gender; and in developing and implementing innovative race relations and equal opportunity training and education programs.

The data which served as the basis for this research paper originated from a larger project (RLA, 1974) conducted under contract for the Army specifically to establish attitudinal and perceptual baselines pertaining to issues and topics relevant to race relations and career orientations

of minority personnel. An extensive questionnaire was administered worldwide to a large sample of Army soldiers, carefully stratified according to a number of relevant characteristics. The original investigation concentrated primarily on male soldiers. The female respondents, comprising about five percent of the total sample, were the primary focus of this report.

The analysis which follow are organized under three major headings. These bear a direct correspondence to the item organization within the questionnaire. First, a general demographic profile of the female soldier population is presented. Next, attitudes and orientations toward the Army as a career are explored in some detail. Finally, interest focuses upon attitudes and perceptions which have a direct bearing upon the racial climate in the Army. Data from the male soldier sample are included only when they provide a relevant comparison or contrast with that of the females. Similarities and differences between black and white female soldiers are a particular focus throughout.

## METHOD

### Instrument Development

After a literature review which concentrated on procedures for measurement of the desired constructs, interviews and group discussions were conducted with Army enlisted and officer personnel to generate appropriate item content. These endeavors led to the development of a preliminary questionnaire which was evaluated in a pilot administration to personnel at an Army installation in the Washington, D.C. area. Changes in the wording of items, response formatting and length produced the final questionnaire.

The instrument was typeset in nonreusable booklet form. Virtually all items were of the structured response variety with a preponderance of five-point Likert-scale items. The respondent's name was not requested. The booklet had the title "Improving Race Relations in the Army" on the cover and contained 36 pages including separate sheets for instructions and each of the last two major section headings. The first major section was "Background" and consisted of 61 items. Next was "Career Orientation," requiring 374 responses. The final section was "Racial Perceptions" which contains 258 items.

Four forms of the survey instrument were printed: Enlisted Black, Enlisted White, Officer Black and Officer White. Officer and enlisted versions differed only in a few items in the background section dealing with rank and manner of entering the Army. The two enlisted versions differed only in alterations of the words black and white in items dealing with perceptions of racial groupings of people, similarly for the two officer versions. The transpositioning was done to facilitate interpretations regarding own and other racial groups in the analysis without complicating the task of the subject.

## Administration Procedures

The instrument was administered in a classroom setting to groups of individuals who worked independently. The average size of groups was 60, ranging up to 100. Each session included both black and white personnel in approximately equal numbers. The administration team, having from two to four individuals, always consisted of personnel of both races. Officers and enlisted personnel completed the questionnaire in separate sessions.

Instructions to subjects stressed that the black and white versions of the questionnaire were exactly the same in content and differed only in the interchanging of the words white and black in certain racial perception items. Subjects were told that if they were black they should obtain and complete the "black version." If they were not black they should pick up and complete the "other version." It was also explained that within the questionnaire respondents would identify their ethnicity more precisely.

Time for completing the instrument ranged from one hour to two hours thirty minutes with an average of about one hour forty-five minutes.

## Sample Section

The questionnaire was administered to a total of 9,015 soldiers at 22 Army installations. It was given at 14 locations from four major continental United States Army Commands, five installations in West Germany, and one installation in Alaska, Hawaii, and Okinawa. At each site a sample was drawn by the Army liaison or contact person, usually the installation race relations officer (post or division), according to sampling instructions specified by the contractor. These instructions stressed that: a master installation roster be used if possible, selection be made using a random method, soldiers be matched by both race and paygrade, enlisted personnel be matched for military occupational specialty (MOS) and be represented by approximately equal numbers for each of three paygrade ranges (E1-4, E5-6, E7-9) and three designated career management field clusters. In addition, the ratio of enlisted to officer personnel was to be approximately seven to three. Finally, the instructions indicated that if the designated individual was unable to attend the questionnaire session, another from the same unit of the same race, paygrade, and MOS should substitute.

Questionnaire records which contained insufficient data or which were unclassifiable according to race or paygrade were eliminated. Thus, the sample size was reduced to 7,749. The females in the sample totaled 370.

## RESULTS

### Demographic Description

One hundred fifty-eight black female (BF) and 187 white female (WF) soldiers constitute the sample upon which the analyses were based.

The female paygrade distribution by race is presented in Table 1. The race and paygrade differences in the sample were significant ( $\chi^2 (4) = 16.696, p < .01$ ). The frequencies indicate a relative underrepresentation of black personnel among junior officers and an overrepresentation in the junior enlisted category. Because of the lack of similarity in the distribution between races no comparison by paygrade were attempted for females. The median age of females was 22.4. The mean age for males exceeded that for females by 3.4 years, a significant difference.<sup>1</sup> Females had a mean of 12.8 years of education. Eight had completed college. The male mean years of education was 12.1, significantly less. The females had served in the Army a median of about 2.4 years; males had served significantly longer. Thus, the typical female soldier was younger and had been in the service less time than her male counterpart, but was none-the-less better educated.

TABLE 1

Distribution of female soldiers by paygrade and race.

Race	Paygrade											
	E1-4	%	E5-6	%	E7-9	%	O1-03	%	O4-05	%	Total	%
Black	104	30	37	12	8	2	4	1	5	1	158	45
White	92	27	55	16	11	3	24	7	5	1	187	54
Combined	196	57	92	27	19	5	28	8	10	2	345	100

<sup>1</sup>All differences reported as statistically significant have been tested using two-tailed, parametric procedures at the  $p < .01$  level unless otherwise noted.

Though 22.8 percent of the females were currently married, only 1.5 percent reported such a marital status before coming into the Army. However, 6.3 percent indicated they were widowed, divorced, or separated prior to joining. Six and a half percent reported supporting one or more children. Among the variables noted so far only for paygrade distribution was a significant difference between BF and WF observed.

Significantly more WF (39.0%) than BF (25.6%) were an only or oldest child. An item asking where the respondent spent most of life before age 18 revealed dramatic differences. Two-thirds of the BF (67.1%) but only one-fourth (25.1%) of the WF report spending their formative years predominantly in the southeast. Conversely, WF were more than twice as likely as BF to be from the midwest (31.0% vs. 14.5%), the far west (9.6% vs. 2.5%), or mountain and southwestern states (6.9% vs. 0.6%). The northeast was the region with most similar representation between BF (12.0% and WF (19.3%). The overall pattern was very similar for the male soldiers' responses to this item.

WF reported having lived in smaller communities between the ages of eight and eighteen than BF. The same relationship was evident in the male sample. With 8.4 percent of the sample not responding, the median income of the household in which BF soldiers grew up was about \$5,300 per year versus \$8,100 per year for WF soldiers, a significant difference. A similar effect was present in the data from males. Both the urban-rural and family income racial differences are perhaps most parsimoniously interpreted as reflections of de facto American--more blacks live in urban areas and have low incomes than whites. Such an explanation is not, however, etiologically informative.

Respondents recorded the kind of work of both their father and mother at the time the subject entered the Army. Occupations were scaled into 12 categories according to the 1970 census system, generally interpretable as a degree of skill continuum. When a comparison was made between BF and WF using the coded value of father's occupation or mother's if his datum was not available, a significant difference was observed with parental occupation of WF being more skilled than parental occupation of BF, with data missing for 20.3 percent of the sample.

The three constructs of parent occupation, income of household in which respondent was reared, and respondent's educational level can be used conjunctively as a measure of socioeconomic status (SES). The interrelationships of the three variables available for the female data are presented in Table 2. While all values are significantly different from zero ( $p < .05$ ), they are strikingly small. Such factors as the diminutive reliability of the household income estimates and, in particular, a general restriction on the range of years of education would be expected to attenuate the relationship. These two factors probably account for the magnitude of the obtained correlation coefficients.

TABLE 2

Pearson product-moment correlation  
coefficients for females

	Occ.	Inc.
Years of Education	.13 (275)	.24 (345)
Occupation of Parent (Occ.)		.22 (275)
Income of Household (Inc.)		

#### Entry Into Army

Some of the factors which influenced females to join the Army are examined in this section. Thirty-nine percent of the female soldiers but 33.8 percent of the males said a close relative had made a career of the military service, a significant difference ( $p < .05$ ). Forty-six percent of females reported they had career counseling to help choose a career before coming in the Army, which was significantly greater than 23.5 percent of males who received counseling. Eight percent more WF than BF received counseling, a nonsignificant difference. However, 67.9 percent of the WF reported they had been guaranteed specific training and/or assignment before entering the Army, but only 52.5 percent of the BF report such guarantees, a difference which is significant.

Female soldiers reported the influence of family upon Army entrance was significantly more important ( $p < .05$ ) than the influence of any of the following: recruiters, friends, school or religious counselors, or court. Elsewhere in the survey BF report that their families exert significantly greater influence to stay in the Army than WF report, though the former group had significantly greater response variability on the item as well. Thus, it appears that relatives exert a substantial effect on the decision of females to enter and many cases to remain in the Army.

From a list of career-related reasons for entering, the females rated "to acquire useful skills and knowledges" as significantly more important than "to earn money," "to have a chance for a career opportunity," "to get a job after the service," "to become eligible for G.I. bill veteran benefits," or "to have a feeling of security." Females rated "acquiring useful skills and knowledges," "getting a better job after the Army," and "chance for a career opportunity" as significantly more important than did the males.

Another group of items asked about reasons related to needs of the respondent for joining. Females chose "need for new experiences" as significantly more important than "need to achieve and be responsible." The latter was significantly more important than "need for self-expression," "need to obtain respect from others," "need to prove manhood/womanhood," or "need to escape from problems." However, the "need to achieve and be responsible" was significantly more important to females than males. Also, females reported that the need to "escape from problems" was significantly ( $p < .05$ ) less important to them than males reported.

The single significant race difference found between females for these items was the greater importance reported by BF of becoming eligible for veteran benefits under the G.I. bill. The difference does not disappear when differences in family income are taken into consideration using partial correlation analysis. To the contrary, the relationship between BF and WF in rating the importance of veteran benefits is slightly enhanced, suggesting that family income may be serving as a suppressor variable with respect to this relationship.

No difference was evident by race in intention to definitely make a career of the Army. However, while 37.3 percent of the male sample so indicated just 13.0 percent of the female sample did. This result appears not to be entirely accounted for simply by age or paygrade distribution differences.

One item from this section of the questionnaire provides specific information about data quality. While 18.5 percent of the females gave no response to the question of would they have entered the military service if there had not been a draft, of those responding, 5.7 percent answered no. It is possible to conceive of situations in which "no" becomes a reasonable response (e.g., husband is drafted and wife enlists to join him). However, such situations seem rather contrived. Therefore, it may be more reasonable to interpret the overall "no" response rate for this item (4.6%) as an indicator, albeit a crude one, of the minimum rate of random responding and/or rate of question misreading for females.

#### General Career Fulfillment

Several items related to female soldiers' affective perceptions of the Army. Asked to judge the morale of the men in the respondent's unit, the mean response was nearest the "just so-so" midpoint with significantly greater variability in the WF responses than in those of the BF.

A question about whether respondents like to work with the other men (sic) in the outfit gave a mean response in the range of "yes, with most of them" but the item revealed significantly greater satisfaction among the white females. Asked if respondents' current career fields were their preferred fields, 71.0 percent of the white versus only 55.6 percent of the black female soldiers said yes, a significant difference.

Asked where they felt they could do the most for their country; being in the Army, working in a civilian job, going to school or college, or as a civilian, significant differences existed between the overall distributions by race. More than twice as many black as white females responded with the school choice (33.1% to 14.0%) while 56.3 percent of the whites but only 42.9 percent of the blacks selected being in the Army. Another item communicated a somewhat similar result. It dealt with how the respondent feels most of the time. There are three possible responses: usually in good spirits, good some of the time and low at other times, or usually in low spirits. While both group means were on the "good spirit" side of the midpoint, BF mean was significantly displaced in the "low spirit" direction from the WF mean. Interestingly, no such difference is observed in the male data. In addition, BF reported significantly lower spirits ( $t(6,905) = 2.262, p < .05$ ) than all males report. One of numerous possible explanations of this finding could be derived from some sort of additive emotional effects of the multiple negative (Epstein, 1973) or double jeopardy (Blakely, 1974) of the unique circumstances of being both female and black. If true, females belonging to other minority groups might manifest a similar difference with respect to the WF and male means. The sample at hand was not, however, suitable for an exploration of this hypothesis.

While overgeneralization is always a risk with inferential statistical analyses, the selected items considered here do suggest that WF may have been somewhat more content, or alternatively that BF were less satisfied, with their general circumstances in the Army. This conclusion will, however, require qualification as a different pattern emerges when specific aspects of the Army environment are considered in the following section.

#### Specific Career Components

A large number of items in the career section of the survey had an identical format. A particular aspect of Army life was stated and then three distinct responses were required: the degree of satisfaction-dissatisfaction, the influence on the respondent's career orientation to stay or leave, and the importance of the target element to the respondent as an individual. Each response was given on a five-point scale. A total of 78 items requiring 234 responses comprised a four-page subsection of the questionnaire. Items were grouped into the following six categories: training experiences (three items), assignment experiences (four items), respect others have for respondent (eight items), leadership of others on the job (six items), the respondent's needs as an individual (31 items), the respondent's interests (ten items), and the respondent's general orientation to Army life and its benefits (16 items).

While the incidence of nonresponding for females of about 10 percent was not appreciably different from other aggregates of items in the survey, these items seem to have suffered severely from the phenomenon known as response set. An opportunity to assess the magnitude of this characteristic

was afforded by a repetition in other parts of the survey of the specific content of several of the items. Correlations for the items in this section were obtained both with items appearing elsewhere in the questionnaire but intended to measure the same construct and with the one immediately adjacent item which was judged a priori least similar in content. Table 3 presents the resulting values for six items.

The pattern is clear. Many subjects apparently gave identical responses to strings of adjacent items. No improvement is observed by considering the female data separately.

TABLE 3

Pearson correlation coefficients between adjacent items and between same-content items on different pages.

	Adjacent Item	Same-Content Item
Importance of chance to have new experiences	.76 (6522) <sup>a</sup>	.28 (6255)
Satisfaction with chance to feel a sense of self-esteem-pride	.75 (6646)	.48 (6654)
Satisfaction with desire to learn useful skills and knowledge	.69 (6613)	.54 (6587)
Importance of respect others give me	.69 (6648)	.22 (6293)
Satisfaction with chance to express individuality	.65 (6705)	.54 (6632)
Satisfaction with chance to be responsible	.61 (6723)	.41 (6893)

<sup>a</sup>Sample size in parenthesis

It is likely that two factors produced this somewhat disheartening characteristic of the data. The first and primary one was the excessive length of the questionnaire. It seems probable that many subjects may have suffered fatigue effects. The second reason, which may have precipitated the effect, was the concentrated format of items in the particular subsection of the questionnaire. On two adjoining pages the respondent viewed 121 questions, each demanding individual deliberation and a separate response.

The fact that some stereotyped responding is present in this subsection and to a lesser degree throughout the questionnaire does not preclude the usefulness of the data base, nor does it necessarily invalidate the results of analyses deriving from it. It does, however, influence the analytical process in the sense that there is more noise in data, which attenuates relationships. Also, it may indicate some conservatism is appropriate in deriving generalizations based on the data. It is, in any case, only through replication that the results of any cross-sectional analysis can become accepted.

Throughout the subsection and in many other portions of the questionnaire it was apparent that the distributions of responses of BF for specific items have somewhat greater variability than do the response distributions of WF. In this subsection 21 items yielded significant  $F$  tests consistent with this hypothesis. For items where the WF variance was greater, no  $F$  was significant ( $p > .10$ ). In addition, among the 234 item variance, 203 were numerically greater for BF than for WF. The magnitude of this greater response variability varied somewhat from one to another but was present in most subsections of the questionnaire.

Several possible explanations could have accounted for the greater response variability of BF. It may be that BF manifested less of the response set phenomenon previously noted. Thus, as they more carefully differentiated among items, greater response variability was the consequence. This possibility was evaluated by examining the patterns of same-content items versus adjacent item correlations separately for BF. Unfortunately, the evidence suggests neither that BF were any more consistent in their responses nor that they were subject to the response set to a lesser degree than WF.

Another possible explanation for the greater variability in BF responses could be that WF were relatively noncommittal on many issues related to race. If true, the latter group would be expected to choose the scale midpoint with substantially higher frequency. Exploring this possibility, twenty items which elicited much greater ( $p < .001$ ) response variability from BF were nonsystematically chosen from throughout the questionnaire. They were analyzed omitting the center-of-scale response category. Several observations were made. First, the frequency of use of the middle of the scale response varied greatly between items, ranging from 8 to 80 percent among the 20 items. Second, conclusions regarding the presence or absence of mean differences between BF and WF were changed for none of the twenty items. Third, comparisons of response distribution variability

based upon the extreme responses still yielded significantly greater variance for BF responses ( $p < .05$ ) for ten items despite a substantial reduction in power. Thus, more frequent use of the middle of scale response did not appear to be an adequate explanation of the phenomenon. BF in the sample do manifest greater response variability for many of the items. As the results of various sections of the questionnaire are presented and discussed, the presence or absence of the effect will be indicated.

A technical problem arises when t-tests are used to compare data from populations with different variabilities. One way of dealing with such a situation is to reduce the degrees of freedom accordingly. The recommended reductions (Hays, 1963) have been made for all t tests presented in this paper.

Next, a listing of items follows for which BF had significantly greater response variance than WF: satisfaction with and career influence of the adequacy race relations training, career influence of the chance to have a satisfactory sex life, satisfaction with and career influence of respondent's own choice of food, career influence of respondent's own choice of entertainment, career influence of a chance for physical danger, satisfaction with a chance to lead others and with a chance to experience the advantages of rank, satisfaction and career influence of the chance to express self in physical and mechanical activities, satisfaction with the chance to express self in service to society, importance of the chance to get an education, satisfaction with chances for promotion, satisfaction with medical care, satisfaction with dental care, satisfaction and career influence of schools for children, satisfaction with pay, and satisfaction and career influence of retirement benefits.

For two items BF indicated significantly less satisfaction than did WF. These items dealt with choice of assignment location and with adequacy of race relations training ( $p < .05$ ). In both instances the mean for BF was on the dissatisfied half of the scale midpoint while the mean for WF was on the other half. WF also rated choice of assignment location as significantly more important than did BF.

BF reported significantly less dissatisfaction, or WF more dissatisfaction, with housing conditions, amount of red tape, and discipline in the Army. Although the questions dealing with satisfactions revealed only a few significant mean differences on individual items between BF and WF, the overall pattern of responses suggested that BF may have been relatively more satisfied in specific areas than WF. Support for this statement derives from the fact that item means for BF indicated numerically greater satisfaction than the means for WF on 50 of the 78 items ( $\chi^2 (1) = 6.205$ ,  $p < .05$ ).

Differences were observed on several items dealing with the importance of the specific content to the respondent as an individual. BF indicated the following significantly more important to them as individuals than WF indicated: race relations training, schools for children, and a chance for physical danger.

Army housing was the only aspect of Army life for which a significant difference between the two groups regarding influence to leave versus to stay was observed. It produced greater influence to leave for WF. In Table 4 is a list of the six aspects of Army life which elicited the greatest influence to stay and the six which generated the greatest influence to leave based upon means for all female responses. A majority of the items on the influence to stay list related to the "needs of the individual" while a majority of items on the other list were derived from the "general orientation to Army life and its benefits" part of the questionnaire.

TABLE 4

Aspects of Army life with greatest influence  
on female respondents.<sup>a</sup>

Greatest influence to stay	Item Mean	Greatest influence to leave	Item Mean
1. chance to get an education	3.67	1. amount of red tape	2.62
2. chance to enjoy the friendship of others	3.62	2. housing condition	2.84
3. chance to be responsible	3.59	3. discipline in the Army	2.94
4. retirement benefits	3.58	4. chance of physical danger	2.99
5. dental care	3.57	5. race relations training	3.02
6. chance to achieve	3.53	6. chance to have privacy	3.03

<sup>a</sup>Scale midpoint equals 3.0; "influence neither to stay nor to leave."

The meaning underlying inclusion of an element in the listings is not always unambiguous. For example, does the influence to leave generated by "discipline in the Army" arise from the restrictive effect on the respondent's life, from some perceived deficiency in behavior of fellow soldiers, or perhaps from perceptions of characteristics of the system of military justice. In light of such extensive possibilities for interpretation without collateral means for external validation it is recommended that one remain cognizant of the risks of overinterpretation of these results.

## Needs

A series of questions were derived from the hierarchical need model proposed by Maslow (1968). The six needs included for evaluation are: individuality, responsibility, material, respect-status, acquiring useful skills and knowledges, and positive racial identity. For each need area the respondent indicated degree of satisfaction and importance as well as specifying characteristics of how and where the need is being met.

WF were most satisfied in the need for responsibility and were significantly more satisfied than BF in this need. No tendency was evident for BF need satisfaction. Clearly, however, BF were less satisfied in the need for positive racial identity, significantly less satisfied than WF report. WF were least satisfied in meeting the need for individuality and this need was ranked next to lowest in the satisfaction hierarchy of the BF as well.

Significantly greater variability for BF compared to WF responses was found for the importance of every need except two: material and positive racial identity. However, the single significant mean difference in importance to the individual was found for the positive racial identity item. WF said this need was less important to them than any other need and less important to them than to BF. No other significant sequencing of need importance was evident for the female soldier data.

Another group of items asked for judgments of the importance of the same six needs to blacks and whites separately. All respondents evaluated the importance of the six needs to both groups. Several interesting patterns emerge from these results.

First, concerning the importance of the needs specifically for blacks, both groups rated all needs in the very important portion of the scale with no differences apparent among the needs. Only one significant difference was observed between the groups. WF inexplicably reported the need for acquiring useful skills and knowledge as less important than BF report; the interpretation that BF were rating this need as relatively more important was not supported by pattern of means present in the data.

When the needs were considered with regard specifically to whites, BF indicated significantly less importance for all six needs ( $p < .05$  for the positive racial identity need) than WF report. This finding was curious in view of the result that WF rated similar importance of needs for both races, except for positive racial identity which they indicated was less important for themselves. Thus, the pattern emerged of WF reporting comparable need importance for blacks and whites on five of the needs while BF report all six needs as generally less important for whites.

## Contact with Other Race

Twenty-one items dealt with actual frequency of the respondent's associations with the other race on a five-point scale with extremes of "always" and "never." Three composite scores pertaining to other

race were derived for each individual by simple item summations: contact history prior to entry into the Army, contact of a social nature in the Army, and contact related to work in the Army. For contact prior to Army and work contact both BF and black males reported significantly greater contact than whites report, a result which seems accounted for by the numerical preponderance of whites both in the Army and in civilian society. While no race difference was apparent for females in other race contact of a social nature, black males do report significantly greater contact than white males report. Numerical values for all groups, it may be noted, are in the range on the five-point scale of "hardly ever" to "sometimes." In addition, females of both races reported significantly greater work contact with the opposite race than males report.

#### Racial Perception Research

Before proceeding to examine the results of analyses based on items from racial perception (RP) section, some consideration of the general nature of questionnaire responses seems necessary. First, it is widely acknowledged that attitudinal data are subject to a variety of subtle influences ranging from various types of response sets to experimenter effects. Second, questions of certain kinds asked under specific circumstances produce results which tend to be biased in the direction of the socially desirable responses. Investigations of racially related sentiments are perhaps more susceptible to distortion toward the societally acceptable views than other types of attitudes. Virtually everyone can state more or less articulately the American ideals concerning equality of all persons. Such a statement is what a researcher may inadvertently obtain when seeking personal attitudes.

While in some research settings it is possible to assess the magnitude of socially desirable response bias through procedures of external validation, no such attempt was made in the current investigation. A related concern with opinion research in general and racially related sentiments in particular is the degree of correspondence between reported attitudes and actual behavior. Ajzen and Fishbein (1977) discuss the problem in detail as well as present a review of the pertinent empirical research.

Several aspects of the administration of the survey instrument have the probable effect of minimizing some of the above difficulties. First, it was made clear to respondents that they should not put their names on the questionnaires. Second, the instructions stressed that "no one will know which answers you provided... Remember--the Army wants to hear what you have to say; but the Army can only hear it if you say it!" Such assurances of anonymity and implied result importance were intended to minimize the elicitation of socially desirable responses.

### Propensities to Approach-Avoid the Other Race

A group of items in the RP section asked respondents to indicate their tendency to approach or avoid the other race "while engaging in each of the activities listed" in Table 5. A five-point scale was used with the midpoint denoting "neither approach nor avoid," with extremes of "approach" and "avoid," and with the intermediate response options being unlabelled.

The most obvious characteristic of the set of responses was the high correspondence in the relative preference for various activities between BF and WF. The degree of association may be summarized using a Pearson correlation coefficient ( $r$ ) based upon the means of the 15 items. These mean values are presented in Table 5 for which the  $r$  value is .910. Also shown in Table 5 are the preference ordering for both groups of female soldiers based upon the mean values. When the degree of correspondence is calculated based upon the orderings the Spearman rank correlation coefficient ( $r_s$ ) value is .800. The largest ordering difference seems to be in the realm of church attendance. The greater response variability of BF is conspicuous by its absence in this subsection of the questionnaire. For only two items was the BF response variance significantly greater ( $p < .05$ ).

The mean approach-avoid scores for both BF and WF fell on the approach side of the midpoint for every item except the last. On the last item the mean for both groups fell in the avoid half of the scale. The pattern of male responses to this particular item contrasts somewhat to those of the females. White males have a mean comparable to the two female soldier groups while the mean for black males falls at the scale midpoint. The mean difference between male groups for this item was significant and larger than for any other item. In addition, the black male responses manifested significantly greater variability than did those of the white males. While on 14 items WF had numerically greater approach tendencies than BF, differences large enough to attain statistical significance were observed only for items 8, 11, 12, 13 and 14.

When the four pairs of items (2&3, 6&7, 8&9, 11&12) for which approach-avoid tendency while engaging in the activity were compared between on-post and off-post, the results suggested a greater approach tendency for the on-post activity. Furthermore, a median test of the magnitude of differences between preference ranks between the on-post and off-post items calculated separately by race indicated that BF had a significantly greater relative preference than WF ( $\chi^2 (1) = 9.33$ ,  $p < .01$ ) for on-post activities. Viewed descriptively rather than inferentially, the mean rank difference of preference for on-post activities for BF was 4.5, but 1.75 for WF.

A factor analysis of approach-avoid items indicates the presence of a strong, single factor in the data. Table 6 presents the loadings on the factor, and the estimated communalities for the items. It accounted for over 90 percent of variance in responses of the females who responded to all 15 items. The result suggests relatively little response differentiation among the various items for many subjects. Again, the last item stands apart from the others. Here it was clearly the least predictable from the

TABLE 5

List of activities for which respondent indicated tendency to approach or avoid the other race.<sup>a</sup>

ACTIVITIES	BF	WF
	Mean Rank	Mean Rank
1. Socializing in barracks.	3.67 (1)	3.81 (3)
2. Socializing in clubs on post.	3.33 (8)	3.47 (13)
3. Visiting clubs or restaurants off post.	3.27 (12)	3.52 (12)
4. Team sport activities.	3.67 (2)	3.95 (1)
5. Individual sport activities.	3.50 (4)	3.81 (4)
6. Attending movies on post.	3.49 (5)	3.65 (9)
7. Attending movies off post.	3.31 (11)	3.54 (11)
8. Getting together in each others' homes off post.	3.32 (10)	3.68 (8)
9. Getting together in each others' homes or barracks.	3.45 (6)	3.75 (6)
10. Shared vacation activities.	3.00 (14)	3.30 (14)
11. Attending church on post.	3.32 (9)	3.77 (5)
12. Attending church off post.	3.15 (13)	3.69 (7)
13. Children's play activities.	3.35 (7)	3.65 (10)
14. Education activities (school attendance).	3.57 (3)	3.87 (2)
15. Dating together.	2.64 (15)	2.57 (15)

<sup>a</sup>Smallest ranks denote activities for which the approach tendencies are highest.

TABLE 6

Loadings on single varimax rotated factor  
and estimated communalities.<sup>a</sup>

ACTIVITIES	LOADINGS	ESTIMATED COMMUNALITIES
1. Socializing in barracks.	.72	.58
2. Socializing in clubs on post	.85	.74
3. Visiting clubs or restaurants off post.	.83	.73
4. Team sport activities.	.60	.63
5. Individual sport activities.	.63	.62
6. Attending movies on post.	.82	.76
7. Attending movies off post.	.86	.79
8. Getting together in each others' homes off post.	.77	.73
9. Getting together in each others' homes or barracks.	.80	.79
20. Shared vacation activities.	.72	.57
11. Attending church on post.	.69	.78
12. Attending church off post.	.65	.73
13. Children's play activities.	.59	.73
14. Education activities (school attendance).	.56	.73
15. Dating together.	.59	.35

<sup>a</sup>Obtained from principal-component factor analysis with six iterations.

responses to the other items with by far the smallest communality of .35. In addition, the same activity--dating together--not only generated the largest response variance among the 15 items for females, but also a variance significantly greater than the next largest item variance in the set ( $F(313,313) = 1.389, p < .05$ ). The frequency distribution for both male and female groups was tri-modal, with modes at the midpoint and both scale extremes.

#### Responses to Annoyance

Another group of items asked subjects to rate how blacks and whites in the Army react to annoyance by persons of another race. The instructions indicated the subjects should respond not as they personally would but as their own and the other racial group do as a whole. The ten behavior tendencies are listed in Table 7. Response categories ranged from very frequently to very infrequently on a five-point scale.

In this section three distinct tasks were carried out. First, subjects gave responses regarding how their own racial group reacted to annoyance. Next, they rated how the other racial group reacted to annoyance. Finally, responses were made concerning how the subjects thought members of the other racial group would evaluate their racial group.

BF and WF viewed the reactions of their own race to annoyance in quite similar ways. In Table 7 are shown the orderings for each group based upon mean values, with the single tie broken in the direction reducing the relationship. The correspondence between the two sets was high as measured by a  $r_s$  value of .891. Two significant mean differences obtained in the own racial group ratings. The BF mean for fearfulness suggested it is an infrequent response tendency for blacks while the WF mean for the item, falling on the other side of the midpoint, suggested it was a more frequent response for whites. BF indicated their racial group tends to defend themselves with greater frequency than the WF indicated for whites. Both of these differences were supported by corresponding significant differences detailed below between BF and WF evaluating the response tendencies of whites and blacks, respectively.

Based upon the means for each group for each item, WF attributed a very similar pattern of most to least frequent response tendencies to blacks as they did to their own racial group ( $r_s = .970$ ). For no item was the rank difference greater than one. By contrast, BF seem to have viewed the frequencies of the behavior tendencies of whites differently than of their racial group ( $r_s = .358$ ). Although an appropriate test between these correlation coefficient values is not available, the difference is judged reliable by the investigators. Some understanding of this difference can perhaps be gained by examining the specific items for which a rank difference of three or more was obtained between BF ratings for the two racial groups. The rank order differences imply attribution by BF of more frequent use by whites of stubbornness, fearfulness, and seeking of support from others; and less frequent use of aggressiveness, striking out against threat, and self-defense.

TABLE 7

Item means and ranks for reactions to annoyance of own race,  
other race, and how other race would say  
own race (OSO) reacts by BF and WF.<sup>a</sup>

Behaviors Tend to...	BF						WF					
	Own		Other		OSO		Own		Other		OSO	
	Mean Rank											
1. Become stubborn.	3.60	5	3.66	1	4.21	1	3.66	3	3.88	3	3.92	1
2. Become fearful.	2.75	10	3.44	5	3.27	8	3.47	7	2.99	8	3.64	7
3. Become depressed.	3.27	7	3.40	7	3.49	7	3.20	8	3.04	7	3.32	8
4. Become aggressive	3.61	3	3.41	6	3.92	4	3.61	4	3.85	4	3.76	5
5. Become quiet and and withdrawn.	3.01	9	3.25	8	3.04	10	2.99	10	2.81	9	3.07	10
6. Seek support from others.	3.31	6	3.50	2	3.61	6	3.49	6	3.78	6	3.83	4
7. Strike out against threat.	3.60	4	3.14	9	3.91	5	3.51	5	3.84	5	3.71	6
8. Ignore threat.	3.13	8	3.01	10	3.18	9	3.07	9	2.73	10	3.15	9
9. Become angry.	3.70	2	3.50	3	4.12	2	3.70	2	3.93	2	3.92	2
10. Defend themselves.	4.13	1	3.47	4	3.97	3	3.75	1	4.02	1	3.90	3

<sup>a</sup>Larger values and lower ranks indicated greater frequency of attribution;  
3.0 equals neither frequently nor infrequently.

In comparing the WF and BF perceptions of the opposite racial group's reactions to annoyance, a number of significant differences between mean ratings for items were evident. BF saw whites as more frequently reacting with fearfulness, depression, quietness/withdrawal than WF perceived blacks. On the other hand, WF attributed to blacks more frequent responses of aggression, anger, and self-defense.

An  $r_s$  value was calculated for each race comparing the overall correspondence between how BF and WF of that race and of the other ordered the reactions to annoyance of the racial group in question. Both values are high, being .915 for blacks and .636 for whites. While the difference in these values might suggest differential perceptions of how the other group tends to react to annoyance, based on ten items with the obvious dependence upon the  $r_s$  values and variables previously considered, the inference of statistical significance is not made. However, note is taken of the two items for which the rank difference was three or more. BF perceived whites as more frequently reacting by seeking out against threat and with self-defensiveness than WF perceived their own race.

The last task in the reaction to annoyance subsection was to rate the frequency of each behavior tendency in reacting to annoyance for Army members of the subjects' own racial group as the other group members would perceive it. The two rank orders generated for this exercise was quite similar ( $r_s = .945$ ). Both BF and WF concur that members of the other group would indicate blacks and whites, respectively, most frequently react to annoyance with stubbornness (1), anger (2), self-defense (3); and least frequently respond with quietness/withdrawal (10) and by ignoring threat (9). For both races the actual correspondence between what the subjects thought the other race would say and what they actually said was substantial, resulting  $r_s$  values exceeded .84.

A total of 30 items comprise this section of the questionnaire. For 25 of the items BF responses had significantly greater variability and for another four items had significantly greater variability than the WF responses at the  $p < .05$  level.

#### Racial Tensions

Twenty items in the questionnaire were rated by subjects on a five-point scale concerning whether the element listed had a very strong to very weak influence upon racial tensions. Results from this portion of the questionnaire, in contrast to the Approach-Avoid and Responses to Annoyance subsections, revealed rather sharp perceptual differences between BF and WF. The consistency ( $r_s = .392$ ) between the strength of influence orderings based upon means for the potential sources reflects the degree of the discrepancy between the groups.

Table 8 shows the twenty items with the five strongest and weakest ratings for the respective groups. On the questionnaire the parenthetical phrases were replaced by the terms blacks or whites depending upon the particular version. While there was concurrence regarding the influence of rumors and of three items of weak influence, the data suggested a

TABLE 8

Perceived sources of racial tensions.<sup>a</sup>

Source	BF	WF
1. Racial biases in promotions favoring (own group).		
2. Racial biases in promotions favoring (other group).	S	
3. Racial biases in MOS assignments favoring (own group).		
4. Racial biases in MOS assignments favoring (other group)	S	W
5. Racial biases in the administration of discipline favoring (own group).		
6. Racial biases in the administration of discipline favoring (other group).	S	
7. Racial biases in the administration of court martials and Article 15s favoring (own group).		
8. Racial biases in the administration of court martials and Article 15s favoring (other group).		
9. Soldiers congregating together on a racial basis due to cultural preferences (for example, tastes in music).	W	W
10. Competition and jealousy over members of the opposite sex.		W
11. The increased use of drugs by Army personnel.	S	
12. Use of drugs by (other group) more than by (own group).	W	W
13. Rumors that grow because reporting of possible racial incidents is inadequate.	S	S
14. Displays of racial literature.	W	W
15. Participation by soldiers in special handshakes and power signs in public.		
16. Mass meetings where soldiers of the same race congregate together.		S
17. Men of the same race eating or sleeping at units other than their own, because of their desire to congregate with members of their own race.		
18. Soldiers showing disregard for or ignoring military courtesy.	W	S
19. Soldiers showing disregard for or ignoring uniform regulations.	W	S
20. Soldiers possessing unauthorized personal weapons: knives, clubs, firearms.		S

<sup>a</sup>Five reasons judged to have strongest influence (S) and weakest influence (W) for each female soldier group are indicated.

pattern of response differences between the two groups. BF perceived biases favoring whites in promotions, MOS assignments, and military justice as having strong influence. All three of these effects are attributable, at least upon cursory analysis, to the Army as an institution. On the other hand, WF responses pointed to behavior of individual soldiers as having the strongest influence upon racial tensions. Further, the data for men reflected a similar pattern, with black males considering the set of institutional sources and with white males indicating personal behavior as having the strongest influence. No differences were evident when enlisted and officer personnel data for males were examined separately.

Four significant mean differences were obtained between BF and WF, on items 4 ( $p < .05$ ), 18 ( $p < .05$ ), 19 and 20. The latter three items represent direct perceptual discrepancies between the two groups, but the former does not since the two versions of the questionnaire actually refer to different racial groups. Every item in the set manifests greater response variability for BF although only nine attain significance ( $p < .05$ ).

#### Perceived Middle-class Value Orientation

Subjects were asked to indicate the applicability separately to officer and enlisted personnel of own- and other-race of five values traditionally associated with the American middle-class and the so-called work-ethic. The responses were made on a five-point scale ranging from Strongly Agree to Strongly Disagree based upon positively worded statements of tendency. The values included for evaluation were: job-oriented versus welfare-oriented, disciplined versus undisciplined, industrious versus lazy, save versus spend, and live for future versus present (italics used in items).

As Table 9 shows the means for most items for the BF and WF responses fell within the Agree to scale midpoint (Neither Agree nor Disagree) range. WF and BF rated both own- and other-race officers at comparable levels for all five values. However, all values were attributed to enlisted personnel to lesser degrees. BF perceived black enlisted personnel as having significantly greater tendencies to save ( $p < .05$ ) and live for the future ( $p < .05$ ) than WF perceived white enlisted personnel. In the cross-race results BF indicated significantly greater attribution of the tendencies to white enlisted personnel than WF indicated for black enlisted personnel for all five of the values. The two values given the lowest scores by WF are the same two for which white enlisted personnel were rated lower by WF than BF rated black enlisted personnel.

These results might suggest a negative response bias on behalf of WF. This interpretation is not supported by judgments regarding officers' values, however. Alternatively, the results point toward BF perceiving white enlisted personnel as possessing relatively greater tendencies of the types indicated than WF perceive black enlisted personnel as having.

TABLE 9

Value attribution to soldier groups.<sup>a</sup>

	BF		WF	
	Blacks	Whites	Blacks	Whites
	Mean	Mean	Mean	Mean
<b>Officers as a group</b>				
Job oriented	3.76	3.82	3.78	3.85
Disciplined	3.73	3.66	3.76	3.80
Industrious	3.71	3.61	3.65	3.57
To save	3.57	3.58	3.41	3.40
Live for future	3.61	3.62	3.54	3.57
<b>Enlisted personnel as a group</b>				
Job oriented	3.56	3.56	3.23	3.55
Disciplined	3.31	3.40	3.10	3.32
Industrious	3.38	3.38	3.10	3.32
To save	3.24	3.30	2.92	3.02
Live for future	3.44	3.34	2.99	3.23

<sup>a</sup>Larger numbers indicate greater attribution; 3.0 = neither agree nor disagree with statement.

The absolute magnitude and especially the practical significance of such differential perceptions is difficult to ascertain. However, the results strongly suggest that WF perceived the value orientations of black officers as different from black enlisted personnel.

#### Generalized Perceptions

A final portion of the questionnaire contains items relating to a somewhat diverse range of subjects under the heading "Summary of Racial Experiences and Perceptions." Due to the general prominence within the questionnaire booklet of this subsection it suffered relatively less missing data than some other sections in the survey. The data from both the male and female samples were analyzed using a five-way complete factorial analysis of variance design. The independent variables included gender, race, paygrade, respondent's reported spirit level (discussed in a previous section of the paper), and a dichotomously scored item dealing with the subject's knowledge level concerning race relations seminars or workshops. Because the last variable was found to involve some ambiguities, no further discussion of it will be presented. Further, because the summary tables proved to be voluminous, they are omitted.

The first item asked how white and black people in the United States will get along together as time goes by. Three responses were possible: they will get along better, about the same as now, or not get along as well as now. While responses to such an item may be very interesting it is important to guard against putting too much importance upon them.

Labeling responses of "get along better" as optimistic, the overall mean is in that direction, falling almost exactly between the midpoint and the extreme. Means are presented in Table 10. Personnel in higher paygrades were found to be more optimistic with a strong linear trend evident. Respondents who reported being in lower spirits were less optimistic. Overall, black respondents were somewhat more optimistic than whites. Also, females overall were more optimistic than males. While each of these results was significant, no estimated  $\beta$  exceeded .21 and the estimated multiple  $R$  for all main effects was only .27. Thus, a relatively small proportion of variance was accounted for by these variables.

A significant interaction of race by paygrade was obtained from the analysis. For middle and senior enlisted paygrade groups blacks were more optimistic than whites, but for junior enlisted and the two categories of officer personnel this pattern was absent. A significant gender by race interaction ( $p < .05$ ) was also observed. Figure 1 shows the relationship. The main effect for race actually reflects the male pattern only. For females a reversal of the direction is indicated. WF gave relatively more optimistic responses than BF. We feel this particular result underscores the importance of examining female soldier perceptions apart from those of males; here the direction of the race variable upon perception is the complete opposite of what it is for male soldiers.

TABLE 10

Means and sample sizes for item asking how  
white and black people will get along in the future.<sup>a</sup>

	Mean	N
Paygrade**		
E1-E4	1.72	2488
E5-E6	1.54	2055
E7-E9	1.42	1342
O1-O3	1.31	637
O4-O6	1.29	257
Race**		
Black	1.49	3047
White	1.60	3732
Spirits**		
Usually good	1.45	3922
Both at times	1.66	2510
Usually low	1.95	347
Gender*		
Female	1.49	328
Male	1.55	6451
Total	1.55	6779

\*  $p < .01$

\*\*  $p < .001$

<sup>a</sup>1 = get along better; 2 = will get along about the same as now.

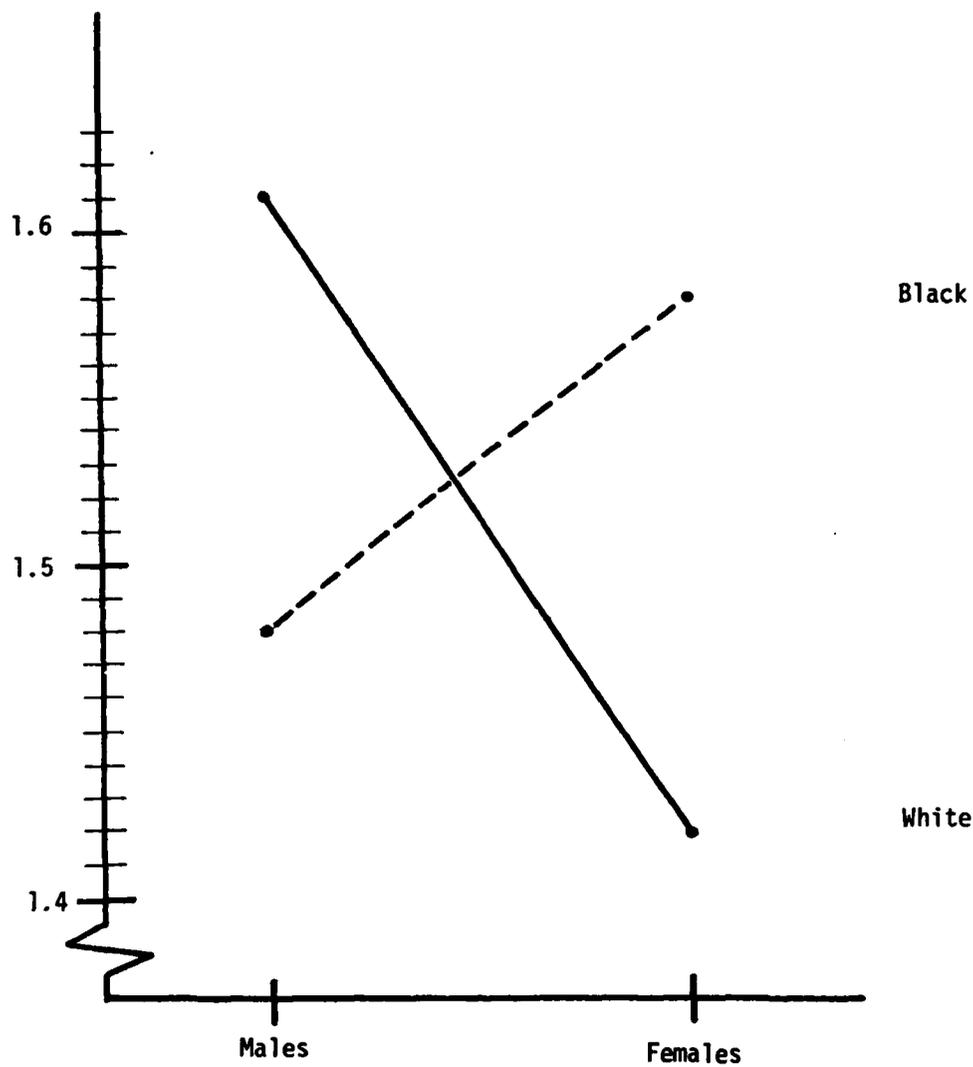


Figure 1. Means for gender by race interaction ( $p < .05$ ) for item asking how white and black people will get along in the future in the United States (1 = will get along better; 2 = will get along about the same as now).

Fuller (1973) in her study of attitudes of women in the Navy noted gender by race interactions for scores on several individual items and on a scale of perceived discrimination. The data did not, however, manifest the crossover pattern; the means for females fell in relative proximity to one another between the means for male groups.

The next item in the questionnaire asked how white and black soldiers get along in the army as compared with civilian life in the U.S. The three response categories were better, about the same, and worse. The mean response for all subjects (1.44, where 1 = better and 2 = about the same) was in the direction which might be labeled positive.

Significant results similar to the preceding item were present for paygrade, for race and for respondent's spirits, but were absent for gender. Means are shown in Table 11. As for the preceding item, both paygrade by race and gender by race ( $p < .05$ ) interactions were significant. The former can be interpreted as a relatively greater positive view held by blacks in the three enlisted groups, but with the means for senior officers indicating no race difference and with evidence of a possible reversal of the pattern for junior officers. ( $t(643) = 1.765$ ,  $p < .05$ , one-tailed).

The gender by sex interaction reflects the same pattern observed on the previous item. Black males view race relations in the Army more positively than white males, but WF perceive it more positively than BF. In the analysis of other results this same cross-over pattern was found to be significant for two scales which will be briefly mentioned here. A similar pattern was observed for approach-avoid scale scores, obtained for each subject by summing across the 15 items in the approach-avoid subsection previously discussed. Higher approach was reflected in the means for WF and for black males than for the other gender-race categories. A significant interaction ( $p < .05$ ) was found for another scale dealing with the subject of separation of the races. The specific items included will be considered later in this paper. White male and BF means reflected the weakest disagreement concerning separation of the races. However, for neither the approach-avoid nor racial separation scale did the estimated  $\chi^2$  (Hays, 1963) exceed .1 percent of the variance.

The next item in the series asked whether black soldiers will, as time goes on, hold more good jobs and have more good ratings than they do today. Again, a three-point response scale was provided with categories of: more, same, and fewer. Significant effects due to paygrade, race, spirits, and gender were found with directions as in preceding items. The means are presented in Table 12. A clear linear trend was evident across the five paygrade categories with means for higher paygrades falling nearer the "more good jobs and ratings" end of the scale. Only the race by paygrade interaction was significant ( $p < .05$ ). Inspection of the appropriate cell means suggested that the race effect was absent for both the junior enlisted category and junior officers.

TABLE 11

Means and sample sizes for item asking how white and black soldiers get along with each other in the Army as compared with civilian life in the U.S.<sup>a</sup>

	Mean	N
Paygrade**		
E1-E4	1.62	2488
E5-E6	1.41	2055
E7-E9	1.26	1342
O1-O3	1.31	637
O4-O6	1.22	257
Race**		
Black	1.38	3047
White	1.49	3732
Spirits**		
Usually good	1.36	3922
Both at times	1.51	2510
Usually low	1.77	347
Total	1.44	6779

\*\*  $p < .001$

<sup>a</sup>1 = better in the Army; 2 = about the same in the Army and in civilian life.

TABLE 12

Means and sample sizes for item asking if black soldiers will hold more good jobs and good ratings in the Army as time goes on.<sup>a</sup>

	Mean	N
Paygrade**		
E1-E4	1.48	2488
E5-E6	1.31	2055
E7-E9	1.23	1342
O1-O3	1.19	637
O4-O6	1.14	257
Race**		
Black	1.31	3047
White	1.36	3732
Spirits**		
Usually good	1.27	3922
Both at times	1.41	2510
Usually low	1.62	347
Gender**		
Female	1.31	328
Male	1.34	6451
Total	1.34	6779

\*  $p < .01$

\*\*  $p < .001$

<sup>a</sup>1 = more; 2 = same as now.

The next item and the last to be considered from this section was in several ways among the most interesting from the entire questionnaire. It asks "If a white soldier and a black soldier had the same ability and training and had been in the Army the same length of time, would they have the same chances of promotion or not?" The three response possibilities were: the white soldier would have a better chance, they would have about the same chance, and, the black soldier would have a better chance. Main effects are evident for paygrade and race. Table 13 presents the means. The paygrade effect, having a significant quadratic trend, was not large. However, the magnitude of the race effect was profound with an estimated  $\omega^2$  of .252 suggesting a huge perceptual discrepancy between the races on this important and sensitive issue.

In addition, three significant interactions obtained, each involving race: spirit by race, paygrade by race, and gender by race ( $p < .05$ ). White subjects responded independently of their indicated spirits while black subjects who reported low spirits had a mean suggesting less perceived equity. Means for the gender by race interaction are shown in Table 14. The mean difference due to race was slightly less for females than for males, but still large and significant ( $t(333) = 7.15, p < .001$ ). This finding was curious in light of responses obtained for an item in the career section of the questionnaire which states "Rate your chance for promotion in the Army." A five-point scale with end labels of very good and very bad was provided. While the mean response was slightly to the good side of average, no difference between the female means was observed ( $.5 > p > .3$ ). BF were, however, more variable in their responses ( $p < .05$ ). Could it be that the wording of the item--referring to one's own chances of promotion versus the chances of a person of one's race--might produce such dramatic differences in results?

The means relevant to the paygrade by race interaction are presented in Table 15. While the overall magnitude of the race difference is striking, the apparent greater discrepancy between officer groups than between enlisted categories is most unexpected. Furthermore, linear trends of means across paygrade categories are significant for blacks ( $F(1,3106) = 20.2, p < .001$ ) and for whites ( $F(1,3775) = 24.9, p < .001$ ) although reflecting slopes confirming the diverging pattern. Implied is an increasingly greater disparity in the perceptions of promotion equity generated by drifts in the means of both racial groups in opposite directions proceeding from junior enlisted through senior office paygrade groups.

In addition, the means in Table 15 reflect a significant quadratic trend among the paygrade groups for blacks ( $p < .01$ ) but not for whites. However, when the means for senior enlisted and senior officer groups were combined and compared to the mean for other soldiers separately for each race, a significant difference was found for whites ( $p < .001$ ) but not for blacks. When the 99 percent confidence interval was calculated for all white soldiers, it did not contain the scale midpoint. This finding suggests that more whites apparently felt that the black soldier would have the better chance for promotion.

TABLE 13

Means and sample sizes for promotion item.<sup>a</sup>

	Mean	N
Paygrade**		
E1-E4	1.76	2488
E5-E6	1.78	2055
E7-E9	1.81	1342
O1-O3	1.72	637
O4-O6	1.70	257
Race**		
Black	1.43	3047
White	2.04	3732
Total	1.77	6779

\*\*  $p < .001$ 

<sup>a</sup><sub>1</sub> = white soldier would have a better chance; 2 = they would have about the same chance.

TABLE 14

Means for promotion item by gender and race.<sup>a</sup>

	Females	Males	Total
Black	1.58	1.43	1.43
White	1.98	2.05	2.04
Total	1.79	1.77	1.77

$p < .05$

<sup>a</sup>1 = white soldier would have a better chance; 2 = they would have about the same chance.

TABLE 15

Means for promotion item by paygrade and race.<sup>a</sup>

Race	Paygrade					Total
	E1-E4	E5-E6	E7-E9	O1-03	O4-06	
Black	1.45	1.46	1.43	1.36	1.23	1.43
White	1.99	2.07	2.10	2.05	2.15	2.04
Total	1.76	1.78	1.81	1.72	1.70	1.77

 $p < .001$ 

<sup>a</sup>1 = white soldier would have a better chance; 2 = they would have about the same chance; 3 = black soldier would have a better chance.

While results such as these are very interesting, it is important to bear several points in mind. First, the specific characteristics of these results must be understood as reflecting perceptions at the particular point of time when administration of the questionnaire took place. Evidence based upon a recent survey (Hiett and Nordlie, in press), however, strongly suggests that the perceptual disparity between blacks and whites concerning promotions in the Army remains large today. Secondly, while the results observed are judged reliable using conventional tests and standards it is well to bear in mind that because of the large size of the sample, quite small effect magnitudes can be detected. So, while on the one hand the race effect is clearly very large, on the other, each of the interaction effects accounts for only about a .5 percent of the total item variance and each of the linear trends accounts for about one percent of the variance for the respective racial groups.

It is curious that from this series of analyses no gender by paygrade interactions were found. Durning and Mumford (1976) reported interactions of that type for a number of variables in their study of Navy enlisted personnel. Even when the paygrade categories for our data were made directly comparable to theirs and an item was specifically selected intending to match their Equal Opportunity index scale we were not able to replicate the interaction ( $p > .5$ ). While some doubt remains whether, in fact, the same construct was being measured in the respective studies, interpreting the result at face value does suggest the existence of cross-service perceptual differences which may warrant further investigation.

#### Prediction of Race Related Attitudes

A central issue both of theoretical and potentially of practical interest in the study of minority group relations is the identification of antecedent variables of intergroup attitudes and perceptions. Inferences concerning causal relationships are severely limited when based only upon cross-sectional data. However, such research endeavors can produce useful insights and generate hypotheses testable through replication, experimentation, or other procedures.

Analyses were directed toward prediction of the set of variables within the RP section of the questionnaire and proceeded in two distinct steps. First, a principle components factor analysis was used to examine the structure of the RP variables and scales. Second, multiple regression procedures were applied to obtain the best possible prediction from demographic and other variables.

The entire sample was included in the factor analysis. Two factors accounted for just over half the variance among the 11 variables included. The five variables with loadings over .4 on the first varimax rotated factor with corresponding scale direction and loadings were as follows: the reported effects of participation in interracial discussions while in the Army upon respondent's feelings toward other race (negative-positive, -.43),

a five-item scale dealing with suppositive statements concerning the geographical, amative, and general separation of black and white races (agree-disagree,  $-.50$ ), a two-item scale concerning preference for working with own race persons (disagree-agree,  $.58$ ), a seven-item scale regarding probable association in social, work, and general contexts with men and women of the other race after separation from the Army (frequently-infrequently,  $.66$ ) and the 15-item scale consisting of the approach-avoid items discussed previously (approach-avoid,  $.66$ ). This factor, termed cross-racial posture, accounts for 30 percent of the variance.

The second factor was comprised of three variables, all derived from one 30-item subsection of the questionnaire. Loadings of the three variables range from  $.55$  to  $.96$ . Ten of the items deal with characteristics of blacks and ten with characteristics of whites that were considered a part of the common stereotype held by the other race in the view of the multiracial research team which developed the questionnaire. The ten remaining items are neutral characteristics judged to apply equally to both groups. Respondents rated each characteristic regarding own racial group and other racial group on a scale ranging from very seldom to very often. The variable with largest loading was the ten-item composite of the frequency of attribution of the stereotype of the other race to the other race. The other two variables consisted of the ten white stereo-typical elements applied to whites by both white and black respondents, and the ten black stereotypical items applied to blacks by both groups. Since the latter two variables each included specific responses which comprise the first variable, a substantial proportion of the shared variance is artifactual. Thus, the amount of variance accounted for is certainly inflated and the substantive existence of the entire factor is somewhat in doubt.

The research strategy chosen was to conduct a simple multiple regression analyses specifically on the approach-avoidance scale; there were several reasons. Not only did it share the highest loading on the first rotated factor, but possessed substantial face validity as well. In addition, consisting of more items than any other scale examined it was found to have high reliability. The coefficient alpha was  $.952$  for female soldiers.

A set of 25 variables were selected as potential predictors of the approach-avoid scale criterion (higher numerical values designated greater approach). In Table 16 are listed the variables and resulting regression coefficients for all females, BF and WF. The variables were scaled from low to high numerical values in the conventional manner or as indicated. The last ten variables were possible reasons for entering the Army with permissible responses ranging from very unimportant to very important. The other-race, opposite-sex, socialization (OROSS) scale, which was the best overall predictor, consisted of the sum of four items inquiring about current frequency of social contact with soldier and civilian, other-race, opposite-sex personnel on- and off-post. One item asking whether the respondent has dated with a person of the opposite race, one item dealing with anticipated frequency of social contact with other-race, opposite-sex individuals after leaving the Army, and two items seeking respondent's

TABLE 16

Results of multiple regression on  
approach-avoid scale scores.

Variable or Scale	Standardized Regression Coefficients			
	All Females	BF	WF	
1. Paygrade	.160	.212	.102	
2. Time in service	-.109	-.582*	-.009	
3. Age	.080	.323	.062	
4. Currently married (no-yes)	.038	.284	-.104	
5. Physical condition (good-poor)	.013	.067	.041	
6. Usual spirits (good-low)	-.042	-.169	.020	
7. Received Article 15 (no-yes)	.009	.023	-.040	
8. Region raised in (MTN,SW,MIDW,NE-Other)	.132*	.157	.137	
9. Size community raised in (urban-rural)	-.031	-.152	-.087	
10. Relatives military career (yes-no)	.078	.050	.043	
11. Oldest child (yes-no)	.054	-.020	.119	
12. Years of education	-.156*	-.191	-.206	
13. Income household where raised	.110	-.057	.106	
14. Skill level of occupation of parent	.034	.182	.003	
15. OROSS scale	.250**	.279**	.228*	
16. Serve my country	.117	.181	-.005	
17. Security	.070	-.019	.049	
18. Money	-.001	.010	.108	
19. Need for new experiences	.127	.126	.174	
20. Need to prove womanhood	-.001	.121	.011	
21. Need to escape problems	-.001	.058	.045	
22. Need for self-expression	-.150	-.657**	-.061	
23. Need to achieve/be responsible	.236*	.399*	.193	
24. Need for respect from others	-.013	.118	.150	
25. Influence of religious counselor	.034	.105	-.077	
	multiple $\bar{R}$	.444**	.685**	.446
	adjusted $\bar{R}^2$	.105	.268	.032

\*  $p < .05$   
\*\*  $p < .01$

agreement or disagreement with "it is wrong for blacks and whites to intermarry" and "to date interracially." Higher numerical scores indicated a more positive attitude toward OROSS. The alpha coefficient was calculated at .802 for female soldiers. The scale clearly bears a conceptual resemblance to the criterion and, in fact, had the highest zero-order correlation with it in the all-female, BF, and WF samples. The values are .22, .32, and .19, respectively.

Multiple correlation coefficients were calculated and tested for the WF, BF and combined samples. The values for the latter two groups were found to be significant, but the value for the former group was not ( $.75 > p > .5$ ). Some clarification of this situation is provided by examination in Table 16 of the squared multiple correlation values adjusted for shrinkage resulting from capitalization upon chance factors using the formula presented by McNemar (1969). Thus, the estimated proportion of explained variance for WF was so small that the null hypothesis of a zero multiple correlation coefficient for the WF population cannot be rejected.

A few words seem in order about the significance tests of specific predictive factors in Table 16. Among the most interesting is the variable of years of education. The sign of this coefficient is in the reverse direction found in most race relations research (Taylor, Sheatsley, Greeley, 1978; Harding, Proshansky, Kutner, and Chein, 1969). While the result could suggest "elitism" among female soldiers, such an interpretation seems premature. Though the zero-order correlation coefficient for all females is of a sign implying more education is associated with less approach, it is too small to be statistically significant ( $.2 < p < .5$ ).

Especially prominent among the coefficients are the large values for the BF sample of service time (.582) and of the need for self-expression (.657). The zero-order correlations with the criterion are .002 and .096, respectively, for the BF sample. Thus, both variables are acting as suppressor variables in the particular set of predictor variables.

Two issues of particular interest are generated by the regression analysis. First, do BF and WF really differ in the predictability of their tendencies to approach the other race? Second, if so, what factors could account for such a difference? In response to the first question it is really only through replication that the finding can be substantiated. Such a project employing a comparable sample is currently in planning. However, taking the obtained difference between the two primary samples at face value for the time being, the second issue remains. A tentative explanation for the result could be based upon differential perceptions of the task of completing the items comprising the criterion. This possibility is suggested by the questionnaire administrators who noted that, in general, blacks seemed somewhat more conscientious than did whites at completing the task. They hypothesized this could have resulted from the entire project being perceived by both racial groups as more likely to benefit black people. Exactly how such differential orientations of this type might become translated into the above observed result is not entirely evident, especially since the response set phenomenon does not seem to differ

between female groups. However, what it seems important to stress is that BF and WF soldier groups likely did have rather sharply differing potential predictability of the construct in question. The result underscores the importance of and need for continuing research differentiating the needs and perceptions of these particular female groups as well as those of other ethnicity. Clearly, to simply combine data from BF and WF soldiers as has commonly been done in most past research related to the female soldier seems rather difficult to justify.

We hope that this project will be useful to military leadership by enhancing interest in and sensitivity to the existence of substantial and important differences among points of view of female personnel of diverse race and ethnic identifications. While this effort has been largely exploratory in orientation, it will have accomplished a primary goal if it generates an awareness among researchers within the military environment that differences in attitudes, perceptions, and behavior between majority and minority female soldiers are as certainly a reality as are such difference among male soldiers.

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